ELECTRON DEVICES FOR SINGLE ELECTRON AND NUCLEAR SPIN MEASUREMENT

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Cited documents:
US5608229 (A)
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Abstract of **WO 9914614 (A1)**

An electron device for single spin measurement, comprising: a semiconductor substrate into which at least one donor atom is introduced to produce a donor nuclear spin electron system having large electron wave functions at the nucleus of the donor atom. An insulating layer above the substrate. A first conducting gate on the insulating layer above the donor atom to control the energy of the bound electron state at the donor. A second conducting gate on the insulating layer adjacent the first gate to generate at least one additional electron in the substrate. In use, a single electron is bound to the donor, and the donor atom is weakly coupled to the additional electron(s) in the substrate. The gates are biased so that the additional electron(s) in the substrate will move to the donor, but only if the spins of the electrons and the donor electron or nucleus are in a relationship which permits the movement.